

ENGINEERING INVENTIONS.

A switch lock has been patented by Mr. Hobert B. Potter, of North Adams, Mass. Combined with a switch-throwing lever is a sliding bar for locking it, a rack on the bar and a pinion engaging therewith, a lever with chain links for turning the pinion, and other novel features, to lock a switch and prevent its being turned, and to set a signal as desired.

AGRICULTURAL INVENTIONS.

A plow has been patented by Mr. Thos. E. Jones, of Center Star, Ala. The construction is such that the plows used may be shovel plows, turn plows, or scrapers, or a single plow may be used, so the plow may be used for the several operations necessary in preparing the ground and cultivating the crop.

A farm gate has been patented by Mr. Edwin H. Penfield, of Santa Barbara, Cal. The body of the gate is hinged upon an upright rod that passes through the upper and lower bars, and is held in cross pieces secured to posts set in the ground diagonally to each other across the line of the fence, the gate being opened and closed by a suitably arranged pivoted lever, cord, and pulleys.

MISCELLANEOUS INVENTIONS.

A combined square, miter, and circle scriber has been patented by Mr. William F. Seargeant, of Marshall, Mo. It consists of a graduated blade, with a beveled or miter point, mounted in a slotted stock, in the heel of which is a screw point, while an adjustable block, also carrying a point, is mounted in the slot formed in the stock.

A beehive has been patented by Mr. William M. Myers, of Hannibal, Mo. It may be made of earthenware, wood, or metal, but preferably of earthenware, as having no cracks or crevices in which moths can lay their eggs, the invention covering novel features in the construction and combination of various parts of the hive.

A creamer has been patented by Mr. Nathan Yingst, of Reistville, Pa. This invention provides a simple form of cabinet in which milk may be thoroughly and quickly cooled and the heat thereof carried directly out of the casing, each of the parts being especially formed with a view to conveniently and expeditiously cleansing the same.

A filter has been patented by Mr. Jos. C. Higgins, of New Brunswick, N. J. The special design of this filter is such that the sand or other filtering material will not be packed while being cleaned, but kept loose and disintegrated during the cleaning operation, while the filter is simple in construction and effective in operation.

A knitting machine has been patented by Mr. Freeman A. Calley, of Pawtucket, R. I. The construction is such that the machine may be conveniently adjusted to knit with one or two threads, and the length of stitch can be easily regulated, with other novel features, the invention being an improvement on a former patented invention of the same inventor.

A washing machine has been patented by Mr. Fredrick E. Richardson, of Uniontown, Ia. It is of that class of machines having a collapsible cage for receiving the clothes, and its construction is such that the clothes are forced through the suds in the tub or box in different directions and thoroughly agitated, without being rubbed, pulled, or beaten.

A flying target has been patented by Mr. Franklin J. Curran, of Stanford, Ky. It may be formed of glass, clay, or other fragile material, and is formed with peripheral notches, each pair being arranged a distance apart less than half the circumference of the target, and the target having circular ribs or ridges so that the shot will not glance off.

A machine for winding wire upon hose has been patented by Mr. Joseph A. Coultans, of Brooklyn, N. Y. Its construction is such that as the hose is fed through an aperture it is automatically turned, and the wire feed is arranged to automatically wind wire spirally around the hose, the apparatus being designed for various sizes of pipe or hose, to give them a protecting covering.

A lock for pocket books has been patented by Mr. Gustave Hood, of Newark, N. J. It has a sliding plate and outer stationary plate, both having rounded corners, with various novel features of construction to make such a lock which shall be neat in appearance, occupy but small space, conveniently operated, and leave no projecting parts liable to wear or tear the pockets.

A safety locking for fire arms has been patented by Mr. Henry C. Waldecker, of Austin, Minn. A locking rod has its operating plate projecting beyond the face of the butt, and has an arm or projection, and a locking bolt is arranged to engage such projection and lock the operating plate, to prevent the premature discharge of guns by keeping the trigger locked until the gun is placed against the shoulder for firing.

A signal lantern has been patented by Mr. George Wells, of Annapolis, Md. It has an outer opaque cylinder or mask which normally rests around and in front of the lamp, and which is lifted away from the lamp by the elevation of each or all of several colored cylinders, to provide lights of different colors by means of concentric sliding glass cylinders, alternately slid over or around the flame.

A fifth wheel gear for vehicles has been patented by Mr. John G. Ebken, of Pittsburg, Pa. Combined with a vehicle box is a hanger projecting downward, a bar secured to the bolster and having a roller running on the hanger, and secured to the bar and to the upper fifth wheel section, with other novel features, the invention being an improvement on a former patented invention of the same inventor.

A rotary ventilator has been patented by Mr. Edwin F. Briggs, of Brooklyn, N. Y. This invention covers a novel construction of the rotating

wheel of the ventilator, whereby its central position is made more effective, with means for varying the angular positions of the vanes, and improvements in the frame and boxes or bearings for carrying the wheel shaft or spindle.

A billiard table leveler has been patented by Mr. Ernst A. Hornbostet, of Oskaloosa, Iowa. It is a device to be placed under the foot of each leg of the table to be leveled, when by turning a worm fitting in a socketed crank arm, the desired adjustment may be made, the device being also applicable for use in connection with printing presses and other heavy articles.

A telephone receiver has been patented by Messrs. John E. Dann and John Lapp, of Honeoye Falls, N. Y. Two horseshoe electric magnets are employed, arranged right and left from the diaphragm on its rear side, both armatures being connected with the diaphragm by rigid rods, so that both act simultaneously on the diaphragm to vibrate it as forcibly as possible, in order to give increased loudness of tone.

Telephone transmitters form the subject of two patents also issued to the above inventors. One of the forms is intended more particularly as an improvement upon instruments of the Reis type, having two small electrodes that are free to vibrate in connection with the diaphragm, and using a local circuit acting through the electrodes reversely to the main circuit, in order to neutralize the adhesion of the electrodes, and facilitate the required rapidity of vibration. The other form of transmitter is especially designed for the production of a loud-speaking instrument, capable of operating with a minimum expenditure of battery power or electromotive force, for which purpose a new and simple construction of the diaphragm is provided, with a novel mechanism co-operating therewith, the diaphragm having a central conical portion, the diameter of the base of which cone shall equal or slightly exceed that of the contiguous inner end of the mouth piece.

NEW BOOKS AND PUBLICATIONS.

A REPORT ON THE TERMINAL FACILITIES FOR HANDLING FREIGHT OF THE RAILROADS ENTERING THE PORT OF NEW YORK. By Gratz Mordecai. New York: *Railroad Gazette*, 1885.

Mr. Mordecai's report was prepared for the *Railroad Gazette*, and gives a careful account of the terminal works and business of the different railroads centering in New York. As the problem of handling the immense amount of freight daily brought into a metropolitan port is one of large importance, this study of the facilities as they now exist will, it is hoped, lead to an improved arrangement of freight houses and yards which will add to the convenience of both carrier and shipper. The author advocates the establishment of a union terminal company for the handling of the greater portion of in-bound and out-bound freight, believing that such a system would give increased economy in time and labor. His report is well worthy the attention of railroad men.

TABLES FOR CALCULATING THE CUBIC CONTENTS OF EXCAVATIONS AND EMBANKMENTS. By John R. Hudson, C.E. New York: John Wiley & Sons, 1886.

The formula developed by Mr. Hudson is quite as accurate as the "prismoidal formula," to which engineers usually have recourse in calculating the cubic contents of excavations and embankments, and has the advantage of being much shorter and simpler. It is particularly adapted to use with tables, and therefore permits greater ease and rapidity in the calculations. Two sets of tables are given: one showing the cubic contents of a level cross section for a given center cut or fill, and specified road bed and side slope; the other, the corresponding contents of the side triangles to be added or subtracted as they are above or below the level cross section. With these tables and a cross section book, one can easily and quickly calculate the cut or fill on each 100 foot section of proposed road, and can be very confident that all the work is accurate, for the tables have been prepared with great care.

Barrowcliffe's Table of Trade Discounts has been prepared with special reference to persons who are much occupied in setting such a price upon goods that it will allow a certain trade discount and still leave a profit over and above the original cost. The table gives the fractional amount to be added to the net selling price so as to permit a discount of from one to ninety-five per cent, and will be found useful to persons who have much of this sort of work to do.

Messrs. Otis Brothers & Co., of New York city, have recently published a large and handsome descriptive catalogue of their standard hydraulic passenger and freight elevators, steam and geared belt elevators, and steam hoisting engines and hydraulic hoists. The dimensions to which their business has grown from the limited proportions indicated by the small factory they occupied in 1852 fully accord with the increasing use of these conveniences for reaching the upper floors of high buildings.

The Pope Manufacturing Company, of Boston, in their "ninth annual greeting," just issued, present a catalogue of their productions which shows that special improvements are constantly being made, although their bicycles and tricycles had formerly seemed to lack nothing necessary to make a perfect machine. The use of these means of locomotion appears to be steadily on the increase.

Received.

THE PRACTICE OF THE IMPROVEMENT OF THE NON-TIDAL RIVERS OF THE UNITED STATES. By Captain E. H. Ruffner, U. S. A. New York: John Wiley & Sons.

BUILDERS' BLANKS FOR ESTIMATING MATERIAL AND LABOR. By I. P. Hicks, Atlantic, Iowa.

TEMPERANCE TEACHINGS OF SCIENCE. By A. E. Palmer. Boston: D. C. Heath & Co.

DRAINAGE FOR HEALTH: OR, EASY LESSONS IN SANITARY SCIENCE. By Joseph Wilson. Philadelphia: P. Blakiston, Son & Co.

Special.

TWO CASES IN VIRGINIA.

In 1884 the mails brought to Philadelphia a grateful letter from a gentleman of Lynchburg, Va., who told the story of the cure of his daughter by the use of the Compound Oxygen Treatment after being a sufferer from inflammatory rheumatism, beginning in her fourth year and lasting nine years. His letter was as follows:

"DRS. STARKEY & PALEN: Dear Sirs: My daughter has been using your Compound Oxygen for five weeks. Within a week, she began to show signs of improvement; since then her recovery has been remarkable. I have never seen anything to equal it. The action of the heart is quiet and soft; there has been no sign of rheumatism; she sleeps sweetly all night; has a fine appetite, has gained many pounds of flesh, and has considerable color; can walk all about the house, and has paid two or three visits in the neighborhood.

"Very respectfully, C. V. WINFREE."

About the time this young lady was finding relief from her inflammatory rheumatism, another lady suffering from consumption began the treatment. She had tried other remedies without success, and the prospects for her future were gloomy indeed.

In addition to her lung troubles she was a sufferer from curvature of the spine. Now, she can write herself a comparatively healthy woman, and the happy wife of the Mayor of that city. Her story is told partly by her husband and partly in a letter from herself. We give her husband's letter below:

MAYOR'S OFFICE, LYNCHBURG, Dec. 15, 1885.

DRS. STARKEY & PALEN: Dear Sirs: In stating what your Compound Oxygen Treatment has accomplished for my wife, I am discharging a debt which I feel I owe to suffering humanity.

My wife has long been in delicate health, and since her seventeenth year has been suffering from curvature of the spine. This greatly weakened her and occasioned much pain and excessive nervousness. Notwithstanding this, she further exhausted her strength and prostrated her health by the usual round of pleasures of the fashionable world: late hours, parties, operas, and above all the german. The result of this course was that her health was completely prostrated, her vitality exhausted, and when on a Northern trip in the summer of 1882 she contracted a deep cold, it settled on her lungs, and consumption was soon after the result.

During the early fall of 1882 she began coughing considerably; and finding that she was fast losing her strength and flesh, early in January, 1883, Mrs. Manson, then Miss Field, set out from her home in Chalpeper, together with her aunt and Dr. Rixey, for Philadelphia. She was then excessively nervous, could not speak louder than a whisper, and was unable to sleep at all. She saw one of the leading allopathic physicians of Philadelphia, who told her she had consumption, and that she must leave at once for Aiken, S. C. By the middle of the month she was on her way there, and did not return until May. Though seemingly benefited for some considerable period during her stay, she had repeated spells which threw her back so much that when she returned she was much worse than when she left home. Soon after her return she went on to New York and consulted an eminent physician there, who advised the phenic acid treatment, which she continued to use during the following summer, notwithstanding its extreme severity, for some time with apparent success, though in the fall it seemed to lose its effect and she discontinued its use, returning to Aiken about the middle of November, 1884. It was then she first used the Compound Oxygen, and when I went to see her at Christmas I found her considerably improved. I was prejudiced against the remedy, and advised her discontinuing its use, which in a great measure she did. From the beginning of the year 1884 she lost ground, till by February she was ill. I was telegraphed for, and found her suffering greatly from biliousness, fever, and great weakness. I returned home to attend to some business after a six days' stay, only to be again telegraphed for. When she returned in May she was distressingly weak and thin, and though she improved some during the summer, she never was half so well as she had been the year before, and about the middle of September she took a violent cold, which confined her to her bed and promised very speedily to end her life. Indeed, for one or two days we thought she would not live to see another; she did, however, rally slightly, and toward the end of the month insisted on going to Philadelphia to try the Compound Oxygen Treatment. I opposed the plan, because I thought she could only live a very little while longer, under any circumstances, and a trip to Philadelphia would only wear out the sooner her little remaining strength; besides, I did not think the Compound Oxygen had done her any good at home, and I did not think she stood any better chance by going there, but she clung to the idea as though it were her last hold on life. Finally I consented to her going, only because I thought she would be better satisfied, and not because I had the slightest hope of her improvement. In her first letter after seeing Dr. Starkey (it was only a few lines scrawled with a pencil) she wrote me that Dr. Starkey said she would have to stay there two weeks before he could say whether the treatment would benefit her. Before the time had elapsed she was feeling much stronger, and her appetite was far better, and by Christmas she could walk a dozen blocks. She remained in Philadelphia till April, having during that time but one bad turn, which, however, threw her back considerably. Since her return my wife has used the Home Treatment, with continued benefit. Her weight in January, 1884, when she had been with you three months, was ninety-five and a half pounds, and that was a great improvement on her condition when she went to you. The last time she was weighed here her weight was one hundred and fifteen pounds. When she went to Philadelphia, she could scarcely walk across the floor without assistance; she can now walk a mile and ride horseback for five miles. She then coughed nearly all the time, with a good deal of expectation. Her cough is now much better, though it still clings to her, and the quantity of expectation is comparatively small.

Her great improvement seems to me almost miraculous, and I attribute it to the Compound Oxygen, aided by a systematic, prudent life, and the abandonment of drugs.

I fear I have written much more fully than you desired I should, but I have hoped that what I have said would be of some benefit to suffering humanity. With kindly remembrance, I am,

Very truly, your friend,

N. C. MANSON, JR.

There are very many people interested in the treatment which has done so much for these two ladies in Virginia. If you wish fuller information send to Drs. STARKEY & PALEN, 1529 Arch Street, Philadelphia, for their treatise, which is sent free to every applicant.

Business and Personal.

The charge for insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

Want to Buy—A patent; must be cheap, have merit; at least ten years to run. E. M. Swift, Jewett City, Conn.

The Leonard hardwood, cleanable, five-walled Refrigerators have air-tight locks. Send for catalogue; mention paper. Refrigerator Co., Grand Rapids, Mich.

Wanted—An established manufactory wants patented articles (iron or steel) to manufacture on royalty; or would buy outright. Address Manufacturer, P. O. Box 261, Pittsburg, Pa.

See Burnham Automatic Engine adv. last and this week.

Gentleman wishes to invest several thousand dollars in manufacturing business in country. N. S. B., Box 773, New York.

Emery Wheels of unusually superior quality for wet grinding. The Tanite Co., Stroudsburg, Monroe Co., Pa.

Be a Hero in the Strife says America's favorite poet. All very well, Mr. Longfellow, but how can you when half your time you feel sick, and do not feel well the other half? Men of noblest principles and highest aim find their efforts thwarted by disease. Night sweats, a hacking cough, and other symptoms only too plainly say consumption. Heed good advice. Try Dr. Pierce's "Golden Medical Discovery," and the bloom of health will return to your cheeks, soundness to your lungs, and you will be a hero yet.

Guild & Garrison's Steam Pump Works, Brooklyn, N. Y. Pumps for liquids, air, and gases. New catalogue now ready.

Wanted—Superintendent for malleable iron works. Address, stating experience and references, "Malleable Iron," P. O. Box 773, New York.

Wanted—Patented articles of merit to manufacture on royalty. Electric Mfg. Co., 311 River St., Troy, N. Y.

Nickel Plating.—Sole manufacturers cast nickel anodes, pure nickel salts, polishing compositions, etc. \$100 "Little Wonder." A perfect Electro Plating Machine. Sole manufacturers of the new Dip Lacquer Kristaline. Complete outfit for plating, etc. Hanson, Van Winkle & Co., Newark, N. J., and 92 and 94 Liberty St., New York.

Grimshaw.—Steam Engine Catechism.—A series of thoroughly Practical Questions and Answers arranged so as to give to a Young Engineer just the information required to fit him for properly running an engine. By Robert Grimshaw. 18mo, cloth, \$1.00. For sale by Munn & Co., 361 Broadway, N. Y.

Wm. Frech, Sensitive Drill Presses, Turret and Speed Lathes combined, Power Punching Presses, 68 W. Monroe Street, Chicago.

Order our elegant Keyless Locks for your fine doors. Circular free. Lexington Mfg. Co., Lexington, Ky.

Send for catalogue of Scientific Books for sale by Munn & Co., 361 Broadway, N. Y. Free on application.

The Knowles Steam Pump Works, 44 Washington St., Boston, and 93 Liberty St., New York, have just issued a new catalogue, in which are many new and improved forms of Pumping Machinery of the single and duplex, steam and power type. This catalogue will be mailed free of charge on application.

Haswell's Engineer's Pocket-Book. By Charles H. Haswell, Civil, Marine, and Mechanical Engineer. Giving Tables, Rules, and Formulas pertaining to Mechanics, Mathematics, and Physics, Architecture, Masonry, Steam Vessels, Mills, Limes, Mortars, Cements, etc. 800 pages, leather, pocket-book form, \$4.00. For sale by Munn & Co., 361 Broadway, New York.

Machinery for Light Manufacturing, on hand and built to order. E. E. Garvin & Co., 139 Center St., N. Y.

Send for Monthly Machinery List to the George Place Machinery Company, 121 Chambers and 103 Reade Streets, New York.

If an invention has not been patented in the United States for more than one year, it may still be patented in Canada. Cost for Canadian patent, \$40. Various other foreign patents may also be obtained. For instructions address Munn & Co., SCIENTIFIC AMERICAN patent agency, 361 Broadway, New York.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J.

Wanted—Salesman acquainted with the Western malleable iron and hardware trade. Address, with references, "Malleable Iron," P. O. Box 773, New York.

Iron Planer, Lathe, Drill, and other machine tools of modern design. New Haven Mfg. Co., New Haven, Conn.

Nystrom's Mechanics.—A pocket book of mechanics and engineering, containing a memorandum of facts and connection of practice and theory, by J. W. Nystrom, C.E., 18th edition, revised and greatly enlarged, plates, 12mo, roan tuck. Price, \$3.50. For sale by Munn & Co., 361 Broadway, New York city.

Curtis Pressure Regulator and Steam Trap. See p. 142.

Tools, Hardware, and other specialties made under contract. American Machine Co., Philadelphia.

Supplement Catalogue.—Persons in pursuit of information of any special engineering, mechanical, or scientific subject, can have catalogue of contents of the SCIENTIFIC AMERICAN SUPPLEMENT sent to them free. The SUPPLEMENT contains lengthy articles embracing the whole range of engineering, mechanics, and physical science. Address Munn & Co., Publishers, New York.

Iron, Steel, and Copper Drop Forgings of every description. Billings & Spencer Co., Hartford, Conn.

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Curtis Steam Trap for condensation of steam pipes, high or low pressure. Curtis Regulator Works, Boston, Mass.

Steam Hammers, Improved Hydraulic Jacks, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

60,000 Emerson's 1886 Book of superior saws, with Supplement, sent free to all Sawyers and Lumbermen. Address Emerson, Smith & Co., Limited, Beaver Falls, Pa., U. S. A.

Hoisting Engines, Friction Clutch Pulleys, Cut-off Couplings. D. Frisbie & Co., Philadelphia, Pa.

"How to Keep Boilers Clean." Send your address for free 88 page book. Jas. C. Hotchkiss, 93 John St., N. Y.